

**REMARKS**

Claims 1, 2-6, 7, 30 and 31 were objected to because of certain informalities. Applicant has amended the claims as shown herein to address the informalities. Withdrawal of the objection is requested.

Claims 7, 8 and 30 were rejected as being indefinite. Applicant has amended the claims to address the issue noted by the Examiner. Withdrawal of the Section 112 rejection is requested.

Claims 9-12, 15-18, 25-28 and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kasperovitz in view of the Applicant's admitted prior art. Claims 1-8, 29 and 30 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kasperovitz in view of the Applicant's admitted prior art and Vaucher.

Kasperovitz teaches a heterodyne structure with a high intermediate frequency and thus is not relevant to the claimed invention of claims 1 and 25 which claims frequency transposition to a null or quasi-null intermediate frequency and effectively addresses issues concerning VCO pulling. As discussed by Applicant in the specification, the use of heterodyned architectures, like that provided in Kasperovitz, with a high intermediate frequency, can address the issue of VCO pulling and parasitic problems of modulation present with a null or quasi-null intermediate frequency (see, page 5, lines 1-11). Applicant accordingly questions the pertinence of Kasperovitz to the claimed invention for providing null or quasi-null intermediate frequency transposition wherein the claims are further directed to a specific PLL structure which is designed to address associated VCO pulling and parasitic problems of modulation.

Claim 1 recites that “the first reference frequency of the main phase locked loop is ... b) greater than 10 times the frequency spacing of the frequency channels reduced to the output frequency of the main local oscillator.” This is important because setting the first reference frequency large enough to have a sufficiently wide band pass of the main phase locked loop (see, also, the claim 1 limitation c) “a spacing between the first reference frequency of the main phase locked loop and a whole integer multiple of the transmit or receive frequency is at least the cut-off frequency of the main phase locked loop”) serves to reduce the effect of VCO pulling to which the main local oscillator is subject (see, Specification, page 3, lines 7 and 31; page 10, lines 20-26; page 11, lines 24-28; page 12, lines 24-26). Applicant has thus disclosed and claimed specific structure in claim 1 which would achieve the goal of combating VCO pulling issues.

The structure of the cited prior art Kasperovitz reference is not configured to address VCO pulling. In fact, Kasperovitz fails to recognize or address in any way the issue of VCO pulling. Kasperovitz fails to teach or suggest structure in accordance with the claim limitation for setting “the first reference frequency of the main phase locked loop ... b) greater than 10 times the frequency spacing of the frequency channels reduced to the output frequency of the main local oscillator.” On page 11 of the Office Action, the Examiner asserts that limitation b) is met by Kasperovitz based on “ $237.5 \text{ MHz} > 1 \text{ MHz} * 10$ .” The “1 MHz” figure mentioned by the Examiner in this mathematical proof statement is NOT the “frequency spacing of the frequency channels” for the “digital satellite TV” signal at issue in Kasperovitz and the example selected by the Examiner. Rather, it is clear that the “1 MHz” figure used in Kasperovitz is a fine tuning step size within a much larger signal bandwidth and channel spacing (col. 6, line 43).

To the extent the Examiner continues to asserts that limitation b) is met by Kasperovitz, Applicant respectfully requests that the Examiner provide a revised mathematical proof based on the operational parameters of the device, and specifically a correct channel spacing, as disclosed in the Kasperovitz specification.

Likewise, Applicant submits that Vaucher fails to teach or suggest “the first reference frequency of the main phase locked loop ... b) greater than 10 times the frequency spacing of the frequency channels reduced to the output frequency of the main local oscillator.” Again, if the Examiner disagrees, Applicant requests a showing of the mathematical proof based on Vaucher’s disclosed operating parameters.

Turning next to limitation c) and the recitation that “a spacing between the first reference frequency of the main phase locked loop and a whole integer multiple of the transmit or receive frequency is at least the cut-off frequency of the main phase locked loop,” the Examiner has conceded that Kasperovitz fails to teach this limitation. The Examiner relies on Applicant’s admitted prior art. Applicant disagrees with the Examiner’s analysis.

The Examiner cites to Paragraph 17 of the specification and the mentioning of the cut-off frequency being less than a tenth of the reference frequency of the loop. This discussion is made in the context of a single loop-type PLL circuit for a voltage controlled oscillator. The claimed invention, however, includes both an auxiliary phase locked loop and a main phase locked loop. There is no suggestion in Paragraph 17 that the “tenth” factor would be applicable within a two loop system as claimed. Paragraph 17 makes no suggestion as to setting the “spacing between the first reference frequency of the main phase locked loop and a whole integer multiple of the transmit or receive frequency [to be] at least the cut-off frequency of the main phase locked

loop” in the context of a combined auxiliary and main phase locked loop system like that claimed.

In view of the foregoing, Applicant submits that claim 1 is patentable over the cited prior art.

With respect to claim 25, Applicant asserts that this claim is patentable over the cited prior art for at least the reasons recited above with respect to claim 1.

The Office is authorized to charge any necessary fees for this entering this response to our deposit account 07-0153 (reference 361170-1019).

In view of the foregoing, Applicant submits that the application is now in condition for favorable action and allowance.

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Respectfully submitted,

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